

Abstract

Spatial processing of wideband and multicarrier signals in a multipath environment is achieved by exploiting frequency diversity. The amplitude-versus-frequency profile of received signals is affected by multipath fading. Spatial separation of the transmitters results in transmitted signals undergoing different fades. Providing the transmitted signals with unique amplitude-versus-frequency profiles ensures that received signals have different profiles, even when multipath fading is negligible. A diversity receiver separates the received signals into components and spatially demultiplexes the interfering signals in each of the frequency components using cancellation, constellation, or correlation processes.